Calsim-III Hydrology Development Group

MEETING NOTES

November 17, 2004 (Wednesday)
9:00am - 11:30am
Resources Building, Rm-1142

Agenda *(Note: This agenda differs from the agenda that was distributed at meeting; it summarizes the agenda that took shape during the meeting.*)

1. Review of 11/3/04 Meeting (Kadir/Brekke)
2. Briefings on Unanswered Criteria Questions
    a. Predictive Questions: State Water Plan
    b. Predictive Questions: CALSIM
    c. Model Dependencies
        i. DSM2
        ii. Stream Temperature
        iii. CALAG
        iv. LCPSIM
        v. *(CVGSM3, WQ, Channel Meander, & Sediment Transport model dependencies re-scheduled for later meeting)*
3. Proposed Water Management Areas (PWMAs) revisited (Bourez/Draper)
4. Proposed Revisisons to PWMAs (Hillaire/Cervantes)
5. Distribution and Overview of Plan Straw Proposal (Bourez/Draper)

Relevant Notes:

1. Review From 11/3/04 Meeting

- **Criteria for Budget Areas/Methodology**
    - Predictive Questions being posed in the State Water Plan forum.
    - Predictive Questions being posed in CALSIM II-supported forums.
        - Temporal Resolution Needs
    - Validation Capability relative to Potential Applications
    - Model Dependencies
        - **System Attributes**
        - **Data availability**
        - **Spatial reach (and source consideration)**
        - **Ownership (and management-area consideration)**
        - **Hydrologic Constraints**
        - **Physical Constraints**
2. **Operational/facility Constraints**
    - Compatibility

        - Backward/Forward (i.e. for future hydrology development plans; extensibility)
    - Project Management Considerations
        - Level of Effort Required: Staff
        - Level of Effort Required: Budget
        - Schedule Limitations

- **Unanswered Questions for Each Criterion (Yes/No?)**
    - Criteria 1. and 2. **(Yes)**
        - *Subject of 11/17 meeting* -- Questions need to be communicated to steer methodology.
        - Criteria 3. **(No)**
    - Validation capabilities to be implied through collaboration between DWR Districts and CALSIM Hydrology Developers, and through application of Criteria 5.
    - Criteria 4. **(Yes)**
        - *Subject of 11/17 meeting* -- Some secondary models have input needs that are not well met by the current hydrology representation in CALSIM II. Explore whether CALSIM-output requests feedback into the hydrology-methodology development.
    - **Criteria 5. (No)**
- **These criteria and their influence on methodology development are self-evident. They need to be applied during implementation of a methodology development framework. No unanswered questions.**
    - Criteria 6 (Yes)
        - Backward compatibility: not defined as an influential criteria on methodology development
        - Forward compatibility: Water Plan's need for multiple "futures" development is one foreseeable issue – may be a off-shoot issue of Predictive Questions
    - Criteria 7. **(Yes)**
    - Schedule milestone to be met: "March 2005" for near-term refinements necessary for next round of Common Assumptions modeling

2. Briefings on Unanswered Questions related to Criteria

- Criteria 1) Predictive Questions – Water Plan (Juricich)
    - Provided 4 handouts:
        - "Overview of Conceptual Framework"
            - Identifies broad objectives for the Water Plan, discloses technical information related to Data, Relationships, and Estimates; organizes information

into a framework for assessing water resources and management (Mind Map)
        - "Questions that should be answered by the Water Plan"
            - Steered by the Mind Map.
        - "Outline for Describing Analytical Tools used for Statewide Planning"
            - Related to development of a "Model Map" – draft version presented…
        - "Potential Tools for use in California Water Plan"
            - list of identified models that might be used…
    - Discussion:
        - Key Questions that CALSIM III hydrology development can help address:
            - representation at "local" resolution
                - "local" resolution is limited by Criteria 5 (System Attributes); budget area definitions and budget methodologies will be developed to define areas as small as reasonably possible.
            - climate change and land use scenarios
                - Mechanics of hydrologic scenario development are important for addressing questions related to climate change and land use – the hydrology development process needs to be economized as much as possible.
            - groundwater supply management
            - water quality
        - Water Plan Management Strategies are still being compiled → its expected that some strategies will impose information requirements that steer water budget "component" definitions.

- Criteria 2) Predictive Questions – CALSIM (Leaf)
    - No Handouts
    - Discussion
        - Time-Scale:
            - Some emerging planning questions are not well answered using a monthly model; reduced time-scale of simulation desired → bears influence on hydrology development; can sub-monthly water budgeting be justified? **Depends on application of Criteria 5**.
        - WQ questions
            - Stream reach definitions not well-matched to stream temperature and dissolved organic carbon questions

        - Brings up time-scale questions
        - Brings up SW/GW interaction questions
    - Common Assumptions Management Strategies are still beiong compiled, like Water Plan → expect some strategies to necessitate certain water budget "component" definitions
    - Leaf suggests spatial scale decision by Dec 1st
        - Stony Creek?
        - Upper Yuba?
        - Resolution on River Systems?
    - Leaf suggests "1-year needs" horizon:
        - Focus on local resolution
        - Representation of summer excess flows
        - Limits on conveyance

- Criteria 4) Model Dependencies – DSM2 (Mierzwa)
    - How CALSIM hydrology redevelopment might affect DSM2:
        - Necessitate ANN retraining
    - How CALSIM hydrology redevelopment might serve DSM2
        - Perform water budgets on reduced time-scale (~daily)
        - Resolve upstream sources of DOC
        - Improve flood flows representation

- Criteria 4) Model Dependencies – Stream Temperature (Yaworsky)
    - How CALSIM hydrology redevelopment might affect Temp Model:
        - Additional nodes may be required
    - How CALSIM hydrology redevelopment might serve Temp Model
        - Give thought toward reach compatiability and node mapping
            - CALSIM II currently has more nodes than the stream temperature models, but they don't match up well
    - How Stream Temp Model might serve CALSIM III
        - Given common model domains, temp-response functions might be developed for implementation in CALSIM III, and enable temperature-driven release operations.

- Criteria 4) Model Dependencies – CALAG (Farnam)
    - **Model under development, ready after 2005**
    - How CALSIM hydrology redevelopment might affect CALAG:
        - Minimal; New budget areas require different aggregation scheme for CALAG's water budget areas, which are currently at the Planning Area scale; Bourez's proposal targets this aggregation issue
    - How CALAG might serve CALSIM

        - Might be used to develop crop-choice response functions to water supply conditions, enabling dynamic land use in CALSIM rather than static land use

- Criteria 4) Model Dependencies – LCPSIM (Hoagland)
    - How CALSIM hydrology redevelopment might affect LCPSIM:
        - Regional supply information from CALSIM serves as input information to LCPSIM – CALSIM output reporting changes need to be communicated to LCPSIM users.
    - How LCPSIM might serve CALSIM:
        - LCPSIM addresses how to handle "turnback" events, where local districts are unable to accept the supplies that CALSIM wants to feed into their regions; CALSIM currently doesn't consider "turnbacks"; LCPSIM might steer CALSIM logic development on this issue

3. Straw Proposal

- Proposed Water Management Areas (PWMAs) revisited (Bourez/Draper)
- Proposed Revisions to PWMAs (Hillaire/Cervantes)
    - Changes to re-align DAU's
- Distribution and Overview of Plan Straw Proposal (Bourez/Draper)
    - Overview